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AUTHOR	Sayeski, Kristin L.; Burgess, Kathleen A.; Pianta, Robert C.; Lloyd, John Wills
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ABSTRACT

This report examines the teacher-reported early literacy behaviors of 2,759 preschool children who participated in a state-supported, early intervention preschool program. Preschool teachers (N = 240) completed the Literacy Competence Checklist for all children in their classes. Teachers reported growth in children's literacy behaviors from Fall to Spring and shifts in commonly displayed behaviors from general verbal language in the Fall to word-level skills in the Spring. Teachers' ratings of verbal comprehension and letter knowledge skills in the fall predicted whether they thought individual children would have difficulty learning to read in kindergarten. The findings showed that teachers see young children as developing pre-literacy skills rapidly, even those children who are expected to have difficulty in the primary grades. (Contains 54 references.) (Author/KB)

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Kristin L. Sayeski
Kathleen A. Burgess
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CIERA REPORT #2014
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CIERA REPORT #2-014

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CIERA Inquiry 2: Home and School
Which pre-literacy and literacy skills do children demonstrate in fall and spring of their preschool year? Which pre-literacy and literacy skills specifically relate to dichotomous teacher predictions of later reading difficulty?

This report examines the teacher-reported early literacy behaviors of 2,759 preschool children who participated in a state-supported, early-intervention preschool program. Preschool teachers (n = 240) completed the Literacy Competence Checklist for all children in their classes. Teachers reported growth in children's literacy behaviors from fall to spring and shifts in commonly-displayed behaviors from general verbal language in the fall to word-level skills in the spring. Teachers' ratings of verbal comprehension and letter knowledge skills in the fall predicted whether they thought individual children would have difficulty learning to read in kindergarten. The results showed that teachers see young children as developing pre-literacy skills rapidly, even those children who are expected to have difficulty in the primary grades.

Center for the Improvement of Early Reading Achievement
University of Michigan – Ann Arbor

November 5, 2001

University of Michigan School of Education

610 E University Ave., Rm 1600 SEB
Ann Arbor, MI 48109-1259

734.647.6940 voice
734.615.4858 fax
ciera@umich.edu

www.ciera.org

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Literacy Behaviors of Preschool Children Participating in an Early Intervention Program

Kristin L. Sayeski
Kathleen A. Burgess
Robert C. Pianta
John Wills Lloyd
University of Virginia

The preschool years, particularly formal preschool experiences, are viewed by many as a time to ensure that children gain the prerequisite skills that support later literacy development (California Department of Education, 1998; Snow, Barnes, Chandler, Goodman, & Hemphill, 1991). Indicators of possible reading difficulties can be identified as early as preschool (Adams, 1990), making ages 3 and 4 key years for identifying children who may need supplemental literacy experience. Snow, Burns, and Griffin (1998), in their review of preschool prediction studies, found that assessment of children's literacy early in preschool predicted later reading achievement nearly as well as similar assessments conducted in kindergarten. Thus, a focus on preschool literacy behaviors holds great potential for those interested in designing instructional and assessment programs aimed at preventing difficulty in learning to read. Literacy instruction and curriculum for the preschool years holds substantial promise for advancing children's skill. However, the process is as yet poorly understood and is there no consensus on appropriate instructional strategies (Torgesen & Hecht, 1995).

In this context, state education agencies began to establish publicly-financed preschools as a means of elevating literacy and other outcomes for their school-entry populations. Twenty-six states have implemented statewide pre-kindergarten programs (Education Week, 1999) and more than 30 states have made significant public investment in preschools (Ripple, Gilliam, Chanana, & Zigler, 1999). In states such as California, these programs are or will be offered on a universal basis, whereas in other states (e.g., Virginia), programs target children whose backgrounds are considered to pose challenges for their success in elementary school. Thus, considerable public investment is aimed at enhancing children's school-related skills through educational experiences in preschool.

The present study was designed to present teachers' descriptors of pre-literacy and literacy behaviors for a sample of preschool students who participated in a publicly-financed, statewide early intervention initiative. The objectives of the study were to: (a) describe children's literacy behaviors in

fall and spring of their preschool year, and (b) identify the preschool predictors of teachers' judgments about children's future reading success.

Early, or "emergent," literacy skills can be divided into at least six areas (Adams, 1990; Clay, 1993; Snow et al., 1998; Whitehurst, Epstein, Angell, Payne, Crone, & Fischel, 1994). These include: (a) alphabet knowledge, (b) phonological awareness, (c) expressive and receptive language, (d) verbal memory, (e) concepts of print, and (f) early writing. In the present study, each of these informs our use of teacher's reports on literacy behavior in young children.

Alphabet Knowledge

Alphabet knowledge, specifically letter naming, has historically been among the reading readiness skills used for the prediction of reading achievement (Snow et al., 1998). Chall (1967) found that a prereader's letter name knowledge was a strong predictor of success in early reading achievement. This was supported by Bond and Dykstra (1967, reported in Adams, 1990) who found that: "The best predictor of student's year-end reading achievement was their entering ability to recognize and name upper and lowercase letters" (p. 43). Recent research supports these classic findings. Scanlon and Vellutino (1996), in their district-wide study of kindergartners, found that letter knowledge was as strong a predictor on its own as other predictors combined. Although research has not clearly determined whether letter naming is a causal or associative predictor of later reading achievement, it is clear that the assessment of this skill provides valuable information for making instructional decisions.

Phonological Awareness

Phonological awareness refers to the metacognitive understanding that spoken words are composed of a series of sounds and those sounds occur within a particular order (Clark and Uhry, 1995; Juel, 1988; Perfetti & Zhang, 1996). Rhyme detection is one proxy that has been used to measure children's phonological awareness (Rumsey & Eden, 1998).

Expressive and Receptive Language

Children's expressive and receptive language skills have also been examined in relation to early reading acquisition. Expressive language production tasks include examining the length and complexity of sentence utterances (Snow et al., 1998). Receptive language skills measure children's knowledge of semantics, syntax, and pragmatics, and include a child's ability to comprehend.

For children to create and understand complex sentences, they must posses syntactical awareness. Syntactical awareness refers to the child's ability to

understand grammatical sentence structure (Tunmer & Chapman, 1999). Scarborough (1991) found that syntactic differences that were evident prior to school entry (i.e., at ages 3, 3.5, and 4) indicated which children would experience later difficulty in learning to read. Additionally, even though Scarborough found that both syntactic and phonological measures were predictors of later reading difficulty, only syntactic differences were detectable at an early age. Measures of syntactical awareness include the ability to create complex sentences.

Verbal Memory

Verbal memory refers to the ability to retain information that has been presented orally in one's working memory (Snow, et al., 1998). Tasks such as repeating sentences, recalling a story that was read aloud, and following a series of directions provide indices of verbal memory. Scarborough (1998), in her review of prediction studies, found that a child's verbal memory was a stronger predictor of later reading achievement than scores on digit span, word span, and pseudo-word repetition. Additionally, the correlation between verbal memory and later reading achievement is comparable to other predictors of reading achievement, such as lexical skills, receptive language, expressive language, phonological awareness, letter identification, and concepts of print (Scarborough, 1998).

Concepts of Print

Prior to entering kindergarten many children begin to construct meaning from print (Downing, 1986) and learn its conventions, including directionality, the concept of the word, and punctuation (Clay, 1993). Additionally, awareness of environmental print (e.g., signs and logos) in four-year-olds may be indicative of a print-rich home environment, a factor associated with early literacy development (Dickinson & DeTemple, 1998). An understanding of the purposes and various functions of print is often referred to as "concepts of print" (Snow et al., 1998). The International Reading Association (IRA) and the National Association for the Education of Young Children (NAEYC), in their joint statement of developmentally appropriate practices (1998), state that the overriding goal of preschool experiences should be to enhance children's exposure to and knowledge of concepts of print. Awareness of environmental print can be demonstrated by a child's ability to read familiar words on signs and logos.

Early Writing

Early writing skills such as drawing, scribbling, and invented spelling have been shown to correlate with later writing skills and children's understanding of concepts of print (Clay, 1975; Snow et al., 1998). Preschool-age children demonstrate their understanding of literacy by moving from creating idiosyncratic marks on a page to producing conventional letters and words

(Harste, Woodward, & Burke, 1984). Early writing has also been shown to support a child's acquisition of alphabetic knowledge and application of phonemic awareness (IRA & NAEYC, 1998; Morris, 1981).

These six skill areas form the basis for pre-literacy and early literacy behaviors that can be observed in four-year-old children. Importantly, the vast majority of studies supporting the importance of these behaviors were conducted on fairly small samples of convenience (e.g., Byrne & Fielding-Barnsley, 1995; Mason, 1980). Yet in the context of the widespread movement to provide publicly-supported early intervention experiences in the pre-kindergarten years, it is becoming increasingly important to examine the prevalence of these behaviors in large samples or populations of young children. Such information provides a description of population-wide literacy skills for at-risk preschoolers, and also provides a normative base for establishing the risk of later reading difficulty. Unfortunately, the cost of studying large samples has too often become prohibitive.

Other national-level studies of early childhood have used teacher reporting as an efficient, cost-effective method for capturing data on large populations of children (National Center for Educational Statistics, 1999). Perry and Meisels (1996), in their review of literature on the accuracy of teachers' judgements of student performance, found that these judgements have satisfactory criterion-related and predictive validity in relation to student performance on standardized tests. Further, the authors found that specific, behavioral measures yield more consistent judgements than non-specific ratings. This review fueled development of the instrumentation for the Early Childhood Longitudinal Study—Kindergarten Cohort (ECLS-K) (Meisels, Nicholson, & Atkins-Burnett, 1997), a prospective study of children's progress through school through a representative national sample. Other large-scale studies of young children, such as the NICHD Study of Early Child Care (NICHD Early Child Care Research Network, in press), and the Head Start Transition Study (see Ramey & Ramey, 1998) rely on teacher reports of children's skills in the classroom, and also demonstrate that such reports correlate with observed behavior and performance on individually-administered standardized tests. Driven by the need for individual assessment data on early literacy, this study will use teacher ratings of literacy-related early childhood behaviors—as measured by the instrument developed for the ECLS-K—to capture descriptive information on a population of preschool children.

The study seeks to address the following research questions:

1. Which pre-literacy and literacy skills do children demonstrate in fall and spring of their preschool year?

2. Which pre-literacy and literacy skills specifically relate to dichotomous teacher predictions of later reading difficulty?

Method

Participants

Data were collected on over 2,759 preschool children who were part of the Virginia Preschool Initiative (VPI). VPI is a state-supported program designed to provide early school experiences for children from families who may be at risk for difficulty in school. Funding for the program comes from the Commonwealth of Virginia's Department of Education, and is intended to provide comprehensive preschool programs to sixty percent of those at-risk four-year-olds in Virginia who are not being served by federal programs such as Head Start and Title I (Commonwealth of Virginia Department of Education, 1997). The Department of Education uses the following indices for identifying eligible children:

1. poverty;
2. homelessness;
3. parents or guardians are school dropouts, have limited education, or are chronically ill;
4. family stress as evidenced by poverty, episodes of violence, crime, underemployment, unemployment, homelessness, incarceration, or family instability;
5. child or developmental problems
6. limited English proficiency.

VPI classrooms are supposed to share the following characteristics (Commonwealth of Virginia Department of Education, 1997). They should (a) provide a full-day program (i.e., at least 6 hours); (b) cap enrollment at 16 children, with a 1:8 adult—to child ratio; (c) employ staff trained in early childhood development; (d) adhere to a specific, pre-approved curriculum; (e) promote home-school communication; and (f) provide health services, social services, and transportation as needed. Analyses of teacher-report data showed that the majority of classrooms met these criteria (Burgess, Lundgren, Lloyd, & Pianta, 2000); data on teacher demographics reveal that 98% of the VPI teachers held a Bachelor's degree or higher.

Two hundred and forty VPI teachers, representing 66% of all VPI classrooms, provided data on 2,759 children in the fall of 1997 and the spring of 1998. Only children for whom we had both fall and spring data (n = 2,759) were included in these analyses. The sample represents 50% of the entire VPI population. Analysis of non-responding teachers (n = 123) and programs indicate no significant differences in terms of population served (i.e., ethnicity, parent/family background, etc.), teacher characteristics (i.e., educational background, ethnicity) or program characteristics (i.e., approved curriculum).

There were approximately equal number of males and females in the sample. The majority of the children were African American (63.8%); 27.6% were White; 3.5% were Hispanic; and 5% were of other backgrounds. The children's first language was predominantly English (94.7%); three percent of the children spoke Spanish as their primary language (see Table 1).

Table 1: Child Demographic Information

Number of children		
Fall 1997 (n = 3659)	Spring 1998 (n = 3251)	Students recorded in both Fall 1997 and Spring 1998 (n = 2670)
Gender		
Male = 49.4%	Female = 50.6%	
First Language		
English = 94.7%	Spanish = 3%	Other = 2.3%

Instrumentation

The rating scale selected for this study was adapted from the Early Childhood Literacy Scale (Meisels et al., 1997) used in the nationally representative Early Childhood Longitudinal Study—Kindergarten Cohort. The modified scale was titled the "Literacy Competence Checklist" (LCC). We selected items based on their applicability to the preschool population and the extent to which they reflected the six areas of literacy skills presented earlier (IRA & NAEYC, 1998).

The ECLS and its modified version, the LCC, are content-referenced measures that assess specific developmental skills and objectives. Items are worded with detailed descriptors of the child to be rated, using a 5-point scale. For example, teachers were asked to rate the children on their ability to "remember and follow directions that involve a series of tasks," "easily and quickly name all upper and lower case letters of the alphabet," "recognize or identify beginning sounds in words," etc. (Meisels et al., 1997).

The LCC contains two sections. In the first section, teachers rated literacy behaviors (n = 14) for each child using a 5-point Likert-type scale (1 = not yet; 2 = beginning; 3 = in progress; 4 = further along; 5 = proficient). A second section of the LCC asked teachers to report on the amount of time the child devoted to certain literacy-related activities and the frequency with which they engaged in them, and then to make a prediction about whether they anticipated that the child would have difficulty learning to read in the first grade.

Consistent with the scoring for the ECLS, a total Literacy Competence score was derived by adding up the 14 literacy items. These items were the main focus of our analysis; social competence items were used only for the purpose of extracting additional predictive value from teacher judgements. Alpha reliability coefficients for the Literacy Competence score fall and

spring were .93 and .95, respectively, very similar to those reported for the full ECLS (Meisels et al., 1997). Perry and Meisels (1997) reported that teachers' judgements of student academic performance were reliable and accurate.

Procedures

The Virginia Department of Education provided a contact list for VPI programs throughout the commonwealth. Data collection packets were distributed to all VPI teachers (n = 363). The packet included a letter from the Virginia Department of Education endorsing the study and an invitation to participate. Those teachers who chose to participate received an honorarium. Follow-up letters and phone calls were made to encourage participation.

Data collection occurred once in the fall (October 1997) and once in the spring (April 1998). At each time, teachers completed one LCC on each child. Children were identified by codes that could be used to compare the fall and spring scores.

Data Analysis

Descriptive data analysis procedures were used to evaluate the children's literacy behaviors; analysis was also made of teacher prediction, based upon children's ratings on the LCC. Descriptive data are presented here through mean scores and percentages. Mean scores were computed by averaging all children's scores per item on the LCC. Comparisons were made item by item from fall to spring. A repeated-measures analysis of variance was conducted to determine if there were statistically significant changes from fall to spring. Additional analysis included determining the percentages of children who were rated as a 1, 2, 3, 4, or 5 for both the fall and spring. For questions relating to the amount of time, the average amount of time across children for each question was computed. We employed t-tests to compare changes in this number from fall to spring. Teachers' predictions of reading failure were analyzed via logistic regression techniques. Chi-square analysis was used to determine the stability of those predictions from fall to spring. In order to avoid the risk of confounding teacher effects with classroom effects, we elected to analyze the data with the child as the unit of analysis and with no corrections.

Results

The following results describe teacher reports of children's literacy behaviors, changes from fall to spring, and the relation of teacher-reported literacy behaviors to predictions of future reading achievement.

Section I: Literacy behaviors. Means from fall and from spring for each of the 14 literacy items are reported in Table 2, along with results from repeated measures analysis of variance for each item. Significant change was evident in each literacy behavior from fall to spring. Additionally, we examined the percentage of children per rating category for both fall and spring (Table 3). Frequency data from the spring teacher reports reveal that at the end of the preschool year the children were not yet demonstrating skills (as indicated by a rating of 1) in the following areas: writing words from memory (54%); demonstrating early writing behaviors (46%); demonstrating an understanding or conventions of print (46%); reading simple books independently (33%); recognizing or identifying beginning sounds in words (31%); producing rhyming words (28%); and easily and quickly naming all letters of the alphabet (20%).

Table 2: Means from Fall to Spring on Literacy Items

	FALL	SPRING
Remembers and follows directions	2.77 (1.14)	3.57* (1.10)
Uses complex sentence structures	2.61 (1.20)	3.50* (1.20)
Understands and interprets a story read to him or her	2.61 (1.12)	3.48* (1.14)
Easily and quickly names all letters of the alphabet	1.63 (.99)	2.72* (1.29)
Produces rhyming words	1.50 (.82)	2.42* (1.22)
Frequently and eagerly chooses reading related activities	2.35 (1.05)	3.14* (1.11)
Predicts what will happen next in stories	2.42 (1.07)	3.32* (1.13)
Reads simple books independently	1.63 (.98)	2.39* (1.29)
Demonstrates early writing behaviors	1.32 (.72)	1.99* (1.16)
Writes words from memory	1.19 (.58)	1.84* (1.12)
Demonstrates an understanding of conventions of print	1.28 (.67)	1.96* (1.11)
Frequently and eagerly chooses writing related activities	1.83 (.96)	2.58* (1.17)
Reads familiar words on signs and logos	1.92 (1.00)	2.73* (1.15)
Recognizes or identifies beginning sounds in words	1.42 (.76)	2.29* (1.19)*

* significant at $p < .001$

Table 3: Percentage of Children per Rating Category: Fall/Spring

	Not Yet	Beginning	In Progress	Intermediate	Proficient
Remembers and follows directions	14.3/3.6	28.6/12.8	30.9/30.4	18.2/29.0	8.0/24.1
Uses complex sentence structures	20.9/6.4	28.5/ 15.12	7.0/ 26.5	15.7/27.1	7.9/25.0
Understands and interprets a story read to him or her	17.1/5.1	32.3/15.4	29.3/28.2	15.0/ 29.2	6.3/22.1
Easily and quickly names all letters of the alphabet	62.4/20.2	21.2/27.6	9.3/24.4	4.8/15.2	2.3/12.6
Produces rhyming words	65.8/27.8	22.0/29.8	9.0/22.7	2.6/12.4	.7/7.3
Frequently and eagerly chooses reading related activities	22.6/6.7	37.2/23.1	26.1/32.4	10.6/25.3	3.5/12.5
Predicts what will happen next in stories	20.7/6.0	36.4/18.1	27.4/30.9	11.2/27.7	4.3/17.2
Reads simple books independently	63.1/33.3	19.5/24.6	10.8/20.1	4.7/13.9	1.9/8.0
Demonstrates early writing behaviors	79.2/46.2	13.3/25.4	4.8/16.7	1.7/6.9	.9/4.8
Writes words from memory	87.5/54.0	8.0/21.8	3.1/14.2	.9/6.2	.5/3.8
Demonstrates an understanding of conventions of print	81.4/45.6	12.0/27.0	4.6/16.6	1.5/7.1	.6/3.5
Frequently and eagerly chooses writing related activities	46.5/19.9	32.3/30.6	14.6/27.6	5.1/14.9	1.5/7.0
Recognizes or identifies beginning sounds in words	70.9/31.2	19.3/31.4	7.1/20.9	2.0/10.4	.6/6.2
Reads familiar words on signs and logos	41.7/15.4	34.7/30.2	16.0/29.7	5.1/16.7	2.4/8.1

The spring data indicate that nearly one fourth of the preschoolers were proficient (as indicated by a rating of 5) in (a) using complex sentence structure (25%); (b) remembering and following directions (24%); and (c) understanding and interpreting a story read to him or her (22%). Furthermore, teachers rated approximately half of the children as in progress or intermediate (i.e., a rating of 3 or 4) in: frequently and eagerly choosing reading related activities (52%); and predicting what will happen next in a story (59%), and reading familiar words on signs and logos (47%).

Section II: Time and frequency. Teachers estimated the amount of time each child spent engaged in the classroom's reading area and the number of occasions per day on which the teacher spent time listening to the child read aloud. (Although it was not stated on the survey, teachers who responded to this question indicated that students were either "pretend" reading by using picture cues or reciting from memory.)

In the fall, teachers reported that the mean number of minutes per day that the child spent in the reading area was 13.27 minutes (range = 0–60 minutes). In the spring, teachers reported 16.37 minutes (range 0–60 minutes). The increase was statistically significant, $t(2650) = -16.35$, $p = .0001$.

Teacher reports from the fall data indicate that they listen to a child read aloud on average .92 times per day. In the spring, teachers reported that they listen to the child read aloud an average of 1.65 times per day. The increase from fall to spring was statistically significant, $t(2296) = -13.08$, $p = .0001$.

Factors Affecting Prediction of Problems

We asked teachers to make a global prediction of whether each child would have difficulty learning to read in the first grade. In the fall, teachers predicted that 23% of their students would have difficulty learning to read. In the spring teachers nominated 22% of the sample as likely to have difficulty in first grade. Table 4 indicates the extent of overlap in teachers' fall and spring nominations. The chi-square analysis reveals that predictions were fairly stable: 83% of the children were consistently predicted by the teachers to belong to either of the two groups, although most of these are accounted for by the large number of children for whom teachers predicted "no difficulty" on both occasions. Importantly, of the more than 600 children predicted to have difficulty at either occasion, approximately two-thirds of these (~400) were consistently viewed as likely to have difficulty.

Table 4: Chi-Square of Teacher Prediction: Teachers Were Asked to Predict Difficulty Learning to Read in the First Grade

		Spring 1998		
		Difficulty Predicted	No Difficulty Predicted	TOTAL
Fall 1997	Difficulty Predicted	391 (14%)	235 (9%)	626 (23%)
	No Difficulty Predicted	206 (8%)	1838 (69%)	2044 (77%)
	TOTAL	597 (22%)	2073 (78%)	2670 (100%)

To examine which teacher-reported literacy behaviors were most related to their predictions of failure to read, a simultaneous regression analysis was employed. Table 5 reports the results. The item that accounted for the most variance in teacher predictions was "understands and interprets story read to him or her," indicating teachers use of children's understanding of verbal language and story as an indication of reading difficulty.

Table 5: Regression Analysis of Teacher Predictions of Difficulty Learning to Read and Literacy Items

Literacy Item	R Change
Understands and interprets story read to him or her	.255
Works well without adult support	.042
Easily and quickly names all upper and lower case letters	.021
Predicts what will happen next in story	.006
Remembers and follows directions	.005
Reads familiar words on signs and logos	.003
Accepts things not going his or her way	.002
Recognizes or identifies beginning sounds in words	.001
Writes words from memory	.002
Produces rhyming words	.001
Frequently and eagerly chooses reading related activities	.001
TOTAL	.340

Discussion

This study offers the opportunity to examine literacy behavior, as reported by teachers, for a large number of preschoolers in a statewide sample who had been identified as potentially at-risk for difficulty in school. Analysis informs us of the progress these children make, their differences by gender, and the criteria that teachers use to predict whether children will meet reading success at the end of first grade. The data are useful for informing policies and practices within early childhood settings.

One of the basic criteria for learning to read is knowledge of the alphabetic principle—that is, the ability to map spoken sounds to written letters. This skill requires phonological knowledge (the ability to manipulate sounds in spoken words) and alphabet knowledge. By the end of preschool the majority of the children in the sample were reported to be "just beginning" to produce rhyming words. On the other hand, 28% of the children in our sample had "not yet begun" to learn this skill at the end of the preschool year.

One-third of the preschoolers were not recognizing beginning sounds in words by the end of their preschool year. Skill in segmenting phonemes is a strong predictor of reading success (Adams, 1990; Byrne, Fielding-Barnsley, Ashley, & Larsen, 1997; Lundberg, Frost, & Petersen, 1988) and can be fostered prior to kindergarten by engaging children in such activities as listening games, rhyming games, syllable clapping, and sentence segmentation (Fernandez-Fein, 1997; Lundberg et al., 1988; Pressley, 1998). Moreover,

phonological skill can be developed through explicit instruction (Adams, 1990; Lundberg et al., 1988; Snow et al., 1998).

Phonological awareness is a necessary, but not sufficient, skill for literacy acquisition (Adams, 1990). Alphabet knowledge is also vital. Teacher reports from the spring revealed that 20% of the preschoolers had not yet begun to name the letters of the alphabet easily and quickly. Again, these findings are similar to those of Fernandez-Fein and Baker (1997), who reported that the number of letters identified was significantly related to rhyme detection. Given that letter naming is a strong predictor for later reading success (Adams, 1990; Bruck, Genesse, & Caravolas, 1997; Ehri, 1997; Elbro, Borstrom, & Petersen, 1998) preschoolers should be surrounded with opportunities to identify letters of the alphabet. Suggestions made jointly by IRA and NAEYC (1998) state that preschool children should learn to identify some letters, make some letter-sound matches, and participate in rhyming games. Teachers are encouraged to talk about letters by name and sound, and to engage children in language games.

Another key component to literacy is awareness of the conventions of print. To become literate, children must understand that print conveys a message (Downing, 1986) and is used for many purposes. For example, print can be used to inform, persuade, or entertain. Moreover, through exposure to books and other print media, children learn concepts of print such as directionality and concept of word (Clay, 1993). This knowledge comes through direct contact with books and explicit modeling by skilled readers, as well as through exposure to environmental print—an experience that may be lacking in some homes (Adams, 1990) for a plethora of reasons, including limited financial resources and time constraints. Forty-six percent of the preschoolers in the sample lacked an understanding of the early conventions of print. According to our teachers, approximately half of the preschoolers do not demonstrate early writing behaviors. Again, the NAEYC and IRA (1998) suggest that preschool children learn that print carries a message, know how to identify labels and signs in the environment, and engage in reading and writing efforts; teachers should establish a literacy-rich environment, reread favorite stories, model reading behaviors, and encourage children to experiment with writing. Intervention programs that include interactive storybook reading help increase children's knowledge of concepts of print and receptive language (Snow et al., 1998) and inform children about the structure of written language (Adams, 1990; Clay, 1993; Pressley, 1998). Klesius and Griffith (1996) found that interactive storybook reading with at-risk kindergartners increased the children's enthusiasm for reading, ability to make predictions, and knowledge of the structure and features of stories. Like all the activities recommended here, we did not collect specific data in this study that would provide information about whether or to what degree these features were present in the VPI classrooms.

Teachers reported growth in both verbal memory and facility with expressive and receptive language. Most children were fairly skilled at using complex sentence structures, remembering and following directions, and interpreting a story that had been read aloud by the spring. Each of these skills contributes to later reading achievement (McCabe, 1994; Snow et al., 1998). Again, specific data were not collected in this study that would provide information about whether or to what degree these features were present.

Although increases in the means on all fourteen literacy behavior variables from fall to spring are statistically significant, gains of particular note were seen in the use of complex sentence structures, understanding stories read aloud, making predictions, and reading familiar words on signs and logos. By spring, teachers report that children were spending more time in the reading area and reading aloud to the teacher. Clearly children were showing progress in literacy behaviors and engagement in literacy activities.

Teacher predictions of preschooler's later success in reading at the end of first grade appear to be a function of variables other than those suggested by researchers. Although the strongest predictors of reading success in first grade are letter naming (Adams, 1990; Bruck et al., 1997; Ehri, 1997) and phonological awareness (Adams, 1990; Byrne et al., 1997; Lundberg et al., 1988), these teachers' predictions of reading problems were associated with skills such as "understanding a story that is read aloud" and "predicting story events." Follow-up study is needed to assess the accuracy of the teachers' predictions; one possible interpretation of the data is that the teachers considered language and skills at the semantic and syntactic level more important than skills at the phonological level. Perhaps they were unaware of the literature indicating that facility with phonology and letters is critical to early reading success.

The primary limitation of our findings relative to early literacy is that they are based on teachers' reports. Nonetheless, it is apparent that these teachers, who have considerable experience teaching young children, believe that many children lack competence in critical areas such as letter knowledge, word knowledge, phonological awareness, and functions of print (Snow et al., 1991). Even though the teachers also report progress in literacy behaviors from fall to spring, the children apparently have much farther to go. Additional research is needed to examine the relationships between the literacy skills reported here and the outcomes for children in programs such as the VPI.

Despite these limitations, the results bear important implications for educators interested in early literacy among children considered to be at risk for school failure. To the extent that teachers' answers to the questions on the LCC are trustworthy, it is apparent that young children enrolled in a preschool program such as the VPI will make strides toward greater facility with literacy. If those advances turn out to foreshadow better outcomes—more rapid acquisition of formal literacy skills, or at least fewer failures to acquire such skills—those programs will be strongly justified. If such growth occurs in the presence of relatively unsystematic instruction (the VPI program uses an approach in which children exercise substantial influence on their activities), educators will have to face questions about whether these sorts of gains are optimal or could be exceeded by use of alternative approaches.

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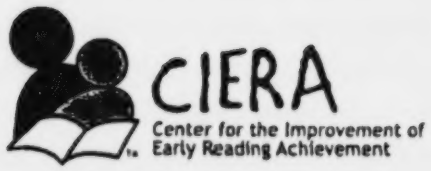

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610 E University Ave., Rm 1600 SEB
Ann Arbor, MI 48109-1259

734-647-6940
734-615-4858-fax
ciera@umich.edu
www.ciera.org

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